



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,598	08/29/2003	Norbert A. Feliss	HIT1P033/HSJ9-2003-0158US	9699
50535	7590	05/16/2006	EXAMINER	
ZILKA-KOTAB, PC P.O. BOX 721120 SAN JOSE, CA 95172-1120			RENNER, CRAIG A	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/651,598

Applicant(s)

FELISS ET AL.

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 2,7,16,24 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-15 and 17-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>27 June 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of "Species I - FIG. 5," upon which "claims 1-6,8-15, [and] 17-24" are identified as corresponding thereto, in the reply filed on 15 February 2006 is acknowledged. Claims 2 and 24, however, do not read on the elected species as the elected species of FIG. 5 does not include "the upper layer [having] a Young's modulus between about 20 to about 250 GPa" and "a middle layer fixedly coupled between the upper and lower layers." Accordingly, claims 2, 7, 16 and 24-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

Drawings

2. The drawings file 15 December 2003 are objected to because of the following informalities:

a. The drawings fail to comply with 37 CFR 1.84(p)(5) because they do not include one or more reference signs mentioned in the description. Note, for instance, "50" (disclosed as "flexure springs" in line 5 on page 10, for instance).

b. The drawings also fail to comply with 37 CFR 1.84(p)(5) because they include one or more reference signs not mentioned in the description. Note, for

instance, "10" (shown in FIG. 1, for instance), "14" (shown in FIG. 1, for instance), and "16" (shown in FIG. 1, for instance).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) and/or an amendment to the specification in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informality:

In line 10 on page 17, "teeth 104" should be changed to --teeth 102-- in order to be consistent with the remainder of the disclosure. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2627

5. Claims 3, 11-15 and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In line 2 of claim 3, it is indefinite as to whether this “Young’s modulus” is the same as that set forth in line 2 of independent claim 1, or if this “Young’s modulus” is in addition to that set forth in line 2 of independent claim 1.

b. In line 2 of claim 11, it is indefinite as to whether this “modulus of the upper layer” is the same as that set forth in line 2 of independent claim 1, or if this “modulus of the upper layer” is in addition to that set forth in line 2 of independent claim 1.

c. In line 2 of claim 11, it is indefinite as to whether this “modulus of the lower layer” is the same as that set forth in lines 4-7 of independent claim 1, or if this “modulus of the lower layer” is in addition to that set forth in lines 4-7 of independent claim 1.

d. In line 8 of claim 12, it is indefinite as to whether this “modulus” is the same as the “Young’s modulus” set forth in line 2 of claim 12, or if this “modulus” is in addition to the “Young’s modulus” set forth in line 2 of claim 12.

e. In line 2 of claim 20, it is indefinite as to whether this “modulus of the upper layer” is the same as those set forth in lines 2 and 8 of independent claim 12, or if this “modulus of the upper layer” is in addition to those set forth in lines 2 and 8 of independent claim 12.

f. Claims 13-15 and 17-19 inherit the indefiniteness associated with independent claim 12 and stand rejected as well.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-5, 8, 11-14, 17 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Koyanagi et al. (US 2002/0071205).

With respect to claims 1, 3-5, 8 and 11, Koyanagi teaches a composite ring (21/51) comprising an upper layer (21) constructed of a material (lines 8-9 in paragraph [0008], for instance, i.e., “stainless steel”) having a Young's modulus greater than or equal to a primary material of a disk (i.e., stainless steel has a Young's modulus greater than or equal to a primary material of a disk dependent upon selection of the disk); and a lower layer (51) fixedly coupled (i.e., securely placed in connection) to the upper layer (as shown in FIG. 6, for instance) and constructed of a material (lines 2-3 in paragraph [0082], for instance, i.e., “titanium”) having similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion, thermal conductivity and Young's modulus (i.e., titanium has similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion, thermal conductivity and Young's modulus, dependent upon selection of the disk) [as per claim 1]; wherein the upper layer has a Young's modulus of between about 60 to about 300 GPa (lines 8-9 in paragraph [0008], for instance, i.e., “stainless steel”

Art Unit: 2627

has a Young's modulus of between about 60 to about 300 GPa) [as per claim 3]; wherein the upper layer is constructed of a material selected from a group consisting of chrome, titanium, nickel, stainless steel and composites thereof (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel") [as per claim 4]; wherein the lower layer has a thermal expansion of between about 1 and 25 ($10^{-6}/^{\circ}\text{C}$) (lines 2-3 in paragraph [0082], for instance, i.e., "titanium" has a thermal expansion of between about 1 and 25 ($10^{-6}/^{\circ}\text{C}$)) [as per claim 5]; wherein the layers are coupled together via mechanical bonding (as shown in FIG. 6, for instance, i.e., via screws 22) [as per claim 8]; and wherein a ratio of a modulus of the upper layer to a modulus of the lower layer is between about 1 and 5 (i.e., a modulus of stainless steel to a modulus of titanium is between about 1 and 5) [as per claim 11].

With respect to claims 12-14, 17 and 20, Koyanagi teaches a composite ring (21/51) comprising an upper layer (21) constructed of a material (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel") having a Young's modulus greater than or equal to a primary material of a disk (i.e., stainless steel has a Young's modulus greater than or equal to a primary material of a disk dependent upon selection of the disk); and a lower layer (51) fixedly coupled (i.e., securely placed in connection) to the upper layer (as shown in FIG. 6, for instance) and constructed of a material (lines 2-3 in paragraph [0082], for instance, i.e., "titanium") having similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion (i.e., titanium has similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion, dependent upon selection

Art Unit: 2627

of the disk); wherein the upper layer has a hardness of greater than about 20 kg/mm^2 (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel" has a hardness of greater than about 20 kg/mm^2); wherein the upper layer has a modulus greater than 60 GPa (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel" has a modulus greater than 60 GPa) [as per claim 12]; wherein the upper layer is constructed of a material selected from a group consisting of chrome, titanium, nickel, stainless steel and composites thereof (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel") [as per claim 13]; wherein the lower layer has a thermal expansion of between about 1 and 25 ($10^{-6}/\text{C}$) (lines 2-3 in paragraph [0082], for instance, i.e., "titanium" has a thermal expansion of between about 1 and 25 ($10^{-6}/\text{C}$)) [as per claim 14]; wherein the layers are coupled together via mechanical bonding (as shown in FIG. 6, for instance, i.e., via screws 22) [as per claim 17]; and wherein a ratio of a modulus of the upper layer to a modulus of the lower layer is between about 1 and 5 (i.e., a modulus of stainless steel to a modulus of titanium is between about 1 and 5) [as per claim 20].

With respect to claims 21 and 22, Koyanagi teaches a composite ring (21/51) comprising a upper layer (21); and a lower layer (51) fixedly coupled (i.e., securely placed in connection) to the upper layer (as show in FIG. 6, for instance) and constructed of a material (lines 2-3 in paragraph [0082], for instance, i.e., "titanium") having similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion and thermal conductivity (i.e., titanium has similar properties to that of the disk, the properties being selected from a group consisting of a coefficient of thermal expansion and thermal conductivity, dependent

Art Unit: 2627

upon selection of the disk); wherein the upper layer has a Young's modulus greater than that of a primary material of a disk (lines 8-9 in paragraph [0008], for instance, i.e., "stainless steel" has a Young's modulus greater than that of a primary material of a disk dependent upon selection of the disk); wherein a ratio of the modulus of the upper layer to a modulus of the lower layer is between about 1 and 5 (i.e., the modulus of stainless steel to a modulus of titanium is between about 1 and 5) [as per claim 21]; wherein the lower layer has a thermal expansion of between about 1 and 25 ($10^{-6}/\text{C}$) (lines 2-3 in paragraph [0082], for instance, i.e., "titanium" has a thermal expansion of between about 1 and 25 ($10^{-6}/\text{C}$)) [as per claim 22].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6, 9-10, 15, 18-19 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi et al. (US 2002/0071205).

Koyanagi teaches the composite ring as detailed in paragraph 7, supra.

Koyanagi, however, remains silent as to the ring lower layer material being "selected from a group consisting of aluminum and glass" as per claims 6, 15 and 23, and as to

Art Unit: 2627

the ring layers being coupled together “by an adhesive” as per claims 9 and 18 or “at a molecular level” as per claims 10 and 19.

Official notice is taken of the fact that any one of aluminum and glass is a notoriously old and well known ring material in the ring art. Official notice is also taken of the fact that adhesive coupling and molecular coupling (i.e., welding, for instance) are notoriously old and well known art recognized equivalent coupling techniques in the ring art to that coupling technique taught by Koyanagi for accomplishing the same function of fixedly coupling layers. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the ring lower layer material of Koyanagi be selected from a group consisting of aluminum and glass, and to have had the ring layers of Koyanagi be coupled together by an adhesive or at a molecular level. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the ring lower layer material of Koyanagi be selected from a group consisting of aluminum and glass since any one of aluminum and glass is a notoriously old and well known ring material in the ring art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

One of ordinary skill in the art would have been motivated to have had the ring layers of Koyanagi be coupled together by an adhesive or at a molecular level since adhesive coupling and molecular coupling (i.e., welding, for instance) are notoriously old and well known art recognized equivalent coupling techniques in the ring art to that

Art Unit: 2627

coupling technique taught by Koyanagi for accomplishing the same function of fixedly coupling layers, and since selecting a known coupling technique on the basis of its suitability for the intended use is considered to be within the level of ordinary skill in the art.

Response to Arguments

10. Applicant's arguments filed 26 September 2005 have been fully considered but they are not persuasive.

As applicant's argument(s) concerning Koyanagi et al. (US 6,785,090) (i.e., the patent of application serial no. 10/035,467) are applicable to Koyanagi et al. (US 2002/0071205) (i.e., the patent grant publication of application serial no. 10/035,467), they are addressed as follows:

The applicant argues that Koyanagi does not teach that the "upper and lower layers are fixedly coupled together." This argument, however, is not found to be persuasive as Koyanagi does teach lower layer (51) fixedly coupled (i.e., securely placed in connection) to upper layer (21) (as show in FIG. 6, for instance). Note that the term "coupled" is very broad and does not necessarily mean physically joined.

11. Applicant's arguments filed 26 September 2005 with respect to claims 6, 9-10, 15, 18-19 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Craig A. Renner
Primary Examiner
Art Unit 2627

CAR